REMARKS

In the Office Action dated May 30, 2007, claim 1 was provisionally rejected under the doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending application Serial No. 10/721,931. The Examiner acknowledged that the conflicting claims are not identical, because claim 1 of the copending application requires the additional step of filtering out structures of no interest, which are not required in claim 1 of the present application. The Examiner nevertheless concluded that the allegedly conflicting claims are not patentably distinct from each other because claim 1 of the present application and claim 1 of the copending application recite common subject matter, and claim 1 of the present application includes the open-ended transition phrase "comprising" that does not preclude the additional elements set forth in claim 1 of the copending application, and the Examiner stated that the elements of claim 1 of the present application are fully anticipated by claim 1 of the copending application.

Applicant acknowledges that the first two steps of claim 1 of the present application as originally filed are the same as the first two steps of the copending application, and of course Applicant acknowledges the use of the transition phrase "comprising" in both applications, which does not preclude the presence of additional items beyond those explicitly set forth in the respective claims. Nevertheless, starting with the common subject matter of the first two steps of claim 1 of the present application and claim 1 of the copending application, there are many thousands of "next steps" that could be available to complete each of those claims. Therefore, obviousness-type double patenting is not compelled by the common

subject matter of the first two claims nor by the use of the word "comprising" in each of the claims.

As to the third step in each of the claims of the present application and the copending application, the Examiner has not provided any substantiation for the Examiner's statement that the elements of claim 1 of the present application are fully anticipated by claim 1 of the copending application. As originally filed, claim 1 of the present application required that the transformed segmented curved surface (i.e., the segmented curved surface that has now been transformed into a plane) is represented as a slice of a predetermined thickness. Although the Examiner may possibly have a theory as to how such a representation is anticipated by the "filtering out" and "retaining" steps of claim 1 of the copending application, the Examiner has not made this theory apparent in substantiating the obviousness-type double patenting rejection, but has simply concluded that anticipation exists. Applicant respectfully submits that representing a transformed curved surface as a slice of a predetermined thickness has nothing to do with the "filtering out" and "retaining" steps of claim 1 of the copending application. Applicant therefore respectfully submits that claim 1 of the copending application does not anticipate the subject matter of claim 1 of the present application, nor has the Examiner presented a prima facie case of obviousness of the subject matter of claim 1 of the present application with regard to the subject matter of claim 1 of the copending application. The Examiner has relied on anticipation as being the "ultimate or epitome" of obviousness, but has merely alleged anticipation without providing any evidentiary support. Since the alleged present of anticipation is the only basis for the allegation of obviousness, this allegation of obviousness is equally unsubstantiated.

Additionally, Applicant submits that if Applicant had attempted to include claim 1 of copending application Serial No. 10/721,931 in the present application as part of the claims herein, the Examiner most likely would have imposed a restriction requirement under 35 U.S.C. §121 on the basis of claim 1 of the copending application and claim 1 of the present application being patentably distinct, which is inconsistent with the present double patenting rejection. Applicant submits that the Examiner should not maintain the double patenting rejection if the Examiner is unwilling to state on the record that such a restriction requirement would not have been imposed.

Claim 2 of the present application was also provisionally rejected on the basis of obviousness-type double patenting as being unpatentable over claim 4 of the copending application, and claim 8 was similarly rejected on the basis of claim 3 of the copending application. Since each of claims 2 and 8 of the present application depend from independent claim 1, and thus embody the subject matter of independent claim 1 therein, and since claims 4 and 3 of the copending application depend from claim 1 of the copending application, and thus embody all of the subject matter of claim 1 of the copending application therein, the above arguments traversing the obviousness-type double patenting rejection of claim 1 of the present application are equally applicable to the obviousness-type double patenting rejection of claims 2 and 8.

Moreover, as discussed below, claim 1 of the present application has been amended to make clear that the transformed segmented curved surface is represented in a display as a planar slice of a predetermined thickness that is coplanar with the aforementioned plane. The above arguments traversing the

obviousness-type double patenting rejections were based on the language of claim 1 as originally filed, and these amendments to claim 1 even further distinguish claim 1 from the subject matter of claim 1 of the copending application, since no display of the type set forth in amending claim 1 of the present application is described in claim 1 of the copending application.

Claims 1, 3, 4 and 7 were rejected under 35 U.S.C. §102(b) as being anticipated by Crook. This rejection is respectfully traversed for the following reasons.

Claim 1 in the form at the time the Office Action was rendered included the step of transforming the volume dataset and the segmented surface to transform the segmented curve surface into a plane, and also included the step of representing the transformed curved surface of the three-dimensional image with a slice of a predetermined thickness. These steps have been amended to make clear that the transformation of the volume dataset and the segmented surface take place by computationally uncurving and flattening the segmented curve surface into a plane. Thus, the volume dataset and the segmented surface are virtually "unrolled" so as to be represented as a plane. An example of the transformed segmented curved surface into a plane is shown in Fig. 5 of the application. At a minimum, this plane need only be composed of one layer of voxels but, as described in the paragraph bridging pages 10 and 11 of the present specification, the display of the plane has a slice of a selected thickness may include, depending on the particular diagnostic problem, a slice above and/or below the segmented surface that has been transformed into a plane, hence a planar slice of a predetermined thickness that is coplanar with the aforementioned plane.

Claim 1 also has been amended to make clear that this planar slice of a predetermined thickness is represented in a display presentation that includes the three-dimensional image as well.

The Examiner has relied on Figures 8 and 9 of the Crook reference as corresponding to the aforementioned step of transforming the volume dataset and the segmented surface into a plane. Applicant submits, however, that the highly schematic illustrations shown in Figures 8 and 9 do not represent a transformation of the *surface* (i.e. the surface of the femur 84 in the example of Crook). In the Crook reference, despite the division into voxels and the subsequent conversion of one surface of each voxel into the representation shown in Fig. 9, the actual surface always remains curved. The graphical representation shown in Figure 9 is not intended to be a representation of the actual surface of the femur 84, but is merely an intermediate step in the generation of data that will then be supplied to a CAD program in order to produce the representation shown in Fig. 10.

The surface composed of joined planar portions shown in Fig. 9 of Crook et al, therefore, represents only a *portion* of the total data that are needed to represent the curved surface, the remaining portion being the vector information that is then used in combination with the extracted surface shown in Fig. 9 to produce the CAD representation shown in Fig. 10. Moreover, the representation shown in Fig. 90 is merely an illustration of an intermediate organization of data in the procedure that leads to the CAD surface shown in Fig. 10, and the representation shown in Fig. 9 is not itself displayed at any time during the computation, since it would serve no purpose in doing so.

-8-

Therefore, the representation shown in Fig. 9 of the Crook reference does not constitute a "computationally uncurved and flattened" (i.e. "unrolled") representation of the segmented curved surface into a plane and, moreover, the representation shown in Fig. 9 of Crook et al is not displayed in a display presentation together with the three-dimensional image, as set forth in claim 1 of the present application.

The Crook reference, therefore, does not disclose all of the elements of claim 1 as arranged and operating in that claim, and thus does not anticipate claim 1, nor any of claims 3, 4 and 7 depending from claim 1.
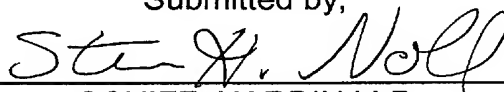
Claim 2 was rejected under 35 U.S.C. §103(a) as being unpatentable over Crook in view of Essinger, claims 5 and 6 were rejected under 35 U.S.C. §103(a) as being unpatentable over Crook in view of Wood, and claim 8 was rejected under 35 U.S.C. §103(a) as being unpatentable over Crook in view of Official Notice of the image processing use of smoothing, low pass filtering, and edge-accentuation.

The above arguments with regard to the anticipation of claim 1 by Crook are equally relevant to these obviousness rejections. All of the aforementioned dependent claims add further structure to the novel combination of claim 1, and therefore even if the Crook reference were modified in accordance with the teachings of any of the secondary references, or in accordance with the Official Notice, the subject matter of those dependent claims still would not result, in view of the absence of a disclosure in the Crook reference of the subject matter of claim 1.

All claims of the application are therefore submitted to be in condition for allowance, and early reconsideration of the application is respectfully requested.

The Commissioner is hereby authorized to charge any additional fees which may be required, or to credit any overpayment to account No. 501519.

Submitted by,

_____ (Reg. 28,982)
SCHIFF, HARDIN LLP
CUSTOMER NO. 26574
Patent Department
6600 Sears Tower
233 South Wacker Drive
Chicago, Illinois 60606
Telephone: 312/258-5790
Attorneys for Applicants.

CH1\ 5143706.1